



INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

15 MAR 2005

Applicant's or agent's file reference M02B146/MW		FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/GB 03/03963		International filing date (day/month/year) 15.09.2003	Priority date (day/month/year) 17.09.2002
International Patent Classification (IPC) or both national classification and IPC F16K1/30			
Applicant THE BOC GROUP PLC et al.			
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet...</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of sheets.</p>			
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the opinion</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>			
Date of submission of the demand 08.04.2004		Date of completion of this report 22.10.2004	
Name and mailing address of the International preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465		Authorized Officer Clot, P Telephone No. +49 89 2399-2724 	

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/GB 03/03963

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-7 as originally filed

Claims, Numbers

1-15 as originally filed

Drawings, Sheets

1/1 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-15
	No: Claims	
Inventive step (IS)	Yes: Claims	1-15
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-15
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V

D1: US-A-4 402 340

D2: LU-A-90254

1) Novelty

The document D1 is regarded as being the closest prior art to the subject-matter of claim 1, and shows in relation with the embodiment of Fig.17 (the references in parentheses applying to this document):

a cylinder valve including:

a single valve member in the form of a spring-loaded shuttle 252, the spring 270 exerting a pressure on the shuttle in a valve-closing direction

a valve seat (fig.6: ref. 49,112) against which the valve member bears in its valve-closing position

a guide (cup 244) defining a channel (internal diameter of the cup 244) in which the shuttle 252 is able to travel

a stop member 248,250,266 able to be translated in the channel into and out of a position in which the stop member holds the valve member in its valve-closing position; and

a valve body 22 which is engaged by the guide (threaded shoulder 245), the guide being able to be translated (through the threaded connection with the valve body)

The object of claim 1 differs therefrom in that the guide is able to be translated **into a position in which the shuttle cannot be brought to bear against the valve seat.**

The subject-matter of claim 1 is therefore new (Article 33(2) PCT).

2) Inventive step

The problem to be solved by the present invention may be regarded as providing a cylinder valve with a single valve member which enables, beyond the combined functions of a conventional manual shut-off valve and of a residual pressure valve ensuring that the cylinder cannot be entirely emptied of gas, also a third function permitting refilling of the cylinder with gas.

The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons:

the guide of the valve is able to be translated into a position in which the shuttle cannot be brought to bear against the valve seat; the guide is thus designed so as to permit disabling the shuttle valve.

2.1) In the surrounding of D1, Fig.17, the cup 244 in which the shuttle valve slides, is screwed in the housing and is thus able to be axially translated.

A translation of the cup 244, in the assembled state of the valve, is however clearly not

intended in D1, for the following reason: the cup 244 belongs to an area of the valve which is on purpose isolated from the outside through a diaphragm 240. This diaphragm blocks access to the guide 244, when the valve is used in its assembled state.

Furthermore, even if an axial translation of the cup 244 of D1 was, under disassembling of the diaphragm, performed, this translation could not bring the cup 244 to a position such that the check valve constituted by the shuttle 252 would be disabled.

- 2.2) The fact to provide the shuttle valve in sliding relationship with a guide which can be translated so that the shuttle cannot be brought to bear against the valve seat is as such known from D2.

D2 discloses (fig.4) a cylinder valve with a guide 48 defining a channel 55 in which a spring-loaded shuttle 56 is able to travel, whereby the shuttle is limited in its extension by a stop 68 at the end of the guide channel; when the guide is screwed towards its second position to disable the valve (Fig.4), it is translated into a position in which the shuttle cannot be brought to bear against the valve seat.

The application of this feature known from D2, in the surrounding of D1 to limit the relative movement of the shuttle in its guide is not regarded as obvious for a skilled person:

D2 relates to a valve with a plurality of valve members rather than with a single valve member; the relevant feature is linked to one only of the plural valve members; it is not obvious to apply this feature in the surrounding of D1, in which an essential feature is the use of a single member.

The guide 48 of D2 is moreover operated from the outside through a tool hole 80. This is not applicable in the surrounding of D1, as the guide is isolated under the diaphragm 240 and thus not accessible from the outside.

- 3) Claims 2-15 are dependent on claim 1 and as such also meets the requirements of the PCT with respect to novelty and inventive step.
- 4) The object of the claims is obviously suitable for industrial application.
- 5) D1 is not acknowledged in the description (Rule 5.1(a)(ii) PCT) as closest prior art; reference signs are missing in the claims (Rule 6.2(b) PCT); the independent claim 1 is not cast in a two-part form (Rule 6.3(b) PCT).